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SOURCE Avtomobil'naya i Traktornaya Promyshlennost', No 9, 1950.DIAMOND SUBSTITUTES FOR TRUING GRINDING WHEELS

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Plant experience and research have confirmed the possibility of reducing the consumption of industrial diamonds employed in truing grinding wheels. For this purpose, rings and rollers made of hard alloys can be used instead. Hard alloy substitutes will grind surfaces to a fineness falling within the limits of Classes 7 and 8 of GOST 2789-45 and to a precision of 0.012 millimeter.

The truing of grinding wheels by hard-alloy disks and rollers is effected by contact as the tool revolves.

In the operation of a centerless grinding machine, during which a tolerance of not more than 1.5 microns was adhered to, the superiority of the hard-alloy method was demonstrated. After diamond truing, 268 parts could be ground, while after truing with a small-dimensional hard-alloy roller, 328 parts, or 22 percent more, were ground.

Despite the indisputable merits of hard-alloy substitutes, and the large possibilities to use them in the plants, their application in industry is still inadequate. The main obstacle is the uneven operation of the truing mechanism resulting from free play in the roller mount. The prolonged use of hard-alloy substitutes in some plants has shown that even operation of the device can be achieved provided it is equipped with a reliable holder. Such a holder has been worked out by the Institute of Automobile Technology of Orgavtoprom (Organization of Automobile Industry). In this holder, stability is given to the disk by two side bushings girded by a steel ring which is clamped tight over the conical surface of the bushings with a massive nut. The stability is further enhanced by the fact that a facet of the lock nut can be engaged in a recess of the socket in which the holder's stem is fixed.

The absence of screws in the holder and its cylindrical shape make it possible to change the disk and to regulate it without removing the holder from the machine tool. The holder can be mounted on different types of machine tools. It has shown good performance in various tests.

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In cases where truing is particularly difficult, a variant of the holder described, based on the same principle but larger in size, is used. It may have paired hard-alloy ring-type disks 32 millimeters in diameter or double disks of thermocorundum, put out by the abrasives industry. The disks are mounted in a removable block, whose axis is made of hard alloy and set in a holder on hard-alloy supports with conical sockets. The supporting bushings are fixed in the same manner as in the holder for the hard-alloy disk described above.

When grinding wheels are trued with the aid of the above attachments, the following precautions must be taken:

1. The wheels must be intensely cooled with an emulsion.
2. The holder must be fixed solidly in the socket.
3. The truing disk must be so mounted that it will not incline to the axis of the grinding wheel.
4. Truing should be started and halted only while the grinding wheel is revolving.
5. Before the holder is mounted, the position of the disk in the supports should be checked; when properly placed, the disk must revolve smoothly within the supports without perceptible jumping on the part of the axis. The disk is regulated by turning the outer threaded ring, and the normal position is fixed by the lock nut.

Recommended Truing Speeds

<u>Grinding</u>	<u>Passes</u>	<u>Longitudi- nal Feed (m/min)</u>	<u>Cross Feed (mm/pass)</u>
Preliminary	1st, 2d	0.5	0.3
	3d, 4th	--	0.02
	5th	--	No feed
Final	1st, 2d	0.2-0.3	0.02
	3d, 4th	--	0.01
	5th, 6th	--	No feed

In the Moscow Automobile Plant imeni Stalin and the Gor'kiy Automobile Plant imeni Molotov, hard-alloy disks 5-6 millimeters thick and 50 millimeters in diameter are used when the truing is particularly difficult. For such disks, roller bearings are used in the holders. The disk, in such cases, is mounted in steel bushings and soldered solidly with copper.

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